



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,309	11/26/2003	Christian Pacha	20195/0200609-US0	6833
7278	7590	06/24/2005		EXAMINER
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			LAM, TUAN THIEU	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/723,309	PACHA ET AL.	
	Examiner Tuan T. Lam	Art Unit 2816	
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --			
Period for Reply			
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.			
<ul style="list-style-type: none"> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b). 			
Status			
1) <input checked="" type="checkbox"/> Responsive to communication(s) filed on <u>12 May 2005</u> .			
2a) <input type="checkbox"/> This action is FINAL . 2b) <input checked="" type="checkbox"/> This action is non-final.			
3) <input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.			
Disposition of Claims			
4) <input checked="" type="checkbox"/> Claim(s) <u>25-37 and 39-51</u> is/are pending in the application.			
4a) Of the above claim(s) <u>51</u> is/are withdrawn from consideration.			
5) <input type="checkbox"/> Claim(s) _____ is/are allowed.			
6) <input checked="" type="checkbox"/> Claim(s) <u>25-29,33-37 and 39-50</u> is/are rejected.			
7) <input checked="" type="checkbox"/> Claim(s) <u>30-32</u> is/are objected to.			
8) <input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.			
Application Papers			
9) <input checked="" type="checkbox"/> The specification is objected to by the Examiner.			
10) <input checked="" type="checkbox"/> The drawing(s) filed on <u>12 May 2005</u> is/are: a) <input checked="" type="checkbox"/> accepted or b) <input type="checkbox"/> objected to by the Examiner.			
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).			
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).			
11) <input type="checkbox"/> The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.			
Priority under 35 U.S.C. § 119			
12) <input checked="" type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).			
a) <input checked="" type="checkbox"/> All b) <input type="checkbox"/> Some * c) <input type="checkbox"/> None of:			
1. <input checked="" type="checkbox"/> Certified copies of the priority documents have been received.			
2. <input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.			
3. <input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).			
* See the attached detailed Office action for a list of the certified copies not received.			
Attachment(s)			
1) <input type="checkbox"/> Notice of References Cited (PTO-892)		4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____	
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)		5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)	
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.		6) <input type="checkbox"/> Other: _____.	

DETAILED ACTION

This is a response to the amendment filed 5/12/2005. claims 25-37 and 39-51 are pending.

Election/Restrictions

1. Newly submitted claim 51 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:
2. Claim 51 reads on figure 7 that is a distinct species from the claims 25-37 and 39-50 read on generally on figure 3.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 51 has been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Specification

3. The disclosure is objected to because of the following informalities: the specification has failed to amend to include the description of the newly added figure 12 submitted on 5/12/2005. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 26, the recitation of “the first power switch transistor is common power switch transistor provided for the flip flop and for at least one additional flip flop” is indefinite because it is misdescriptive of the present invention. Figure 3 shows the power switch transistor (303) couples the pulse generator (302) to Vss. The flip flop (301) is coupled **directly to VDDL and VSS**. Therefore, the first power switch transistor is not a common power switch transistor to the flip flop let alone the power switch transistor be a common switch to the additional flip flop as recited. Applicant is required to particularly point out as to how the power switch transistor (303 shown in figure 3) is a common switch to the flip flop (301). Correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Horiguchi et al. (USP 5,583,457). Figure 29 of Horiguchi et al. shows a circuit arrangement comprising a flip flop (LH) having a plurality of storage transistors with a threshold voltage of a first value (high threshold), a first power switch transistor (MP1, MN1) having a second threshold voltage (high threshold), wherein an application of a predetermined electrical potential

(CK, CKB) to the first power switch transistor gate terminal brings the circuit arrangement to an operating state (standby mode) in which if at least one supply voltage is switched off, electric charge carriers (leakage current) contained in the circuit arrangement are prevented from discharged from the circuit arrangement, and a plurality of switching transistors (MP2, MN2), having a threshold voltage of a third value, provided between the flip flop and the first power switch transistor, for coupling the flip flop input signal (IN) into the flip flop, wherein the magnitude of the first and/or second value is greater than the magnitude of the third value (high threshold voltage is larger than the low threshold voltage), wherein at least one of the terminals of the switching transistors has a defined electrical potential in the operating state (in the standby mode, the gate terminals of the switching transistors MP2 and MN2 has a defined electrical potential) as called for in claim 29.

Regarding claim 25, the flip flop (LH) has two inverters.

Regarding claim 27, since the storage and the first power switching transistors have a higher threshold voltage, the thickness of the gate insulating layer of the storage transistors and the first power switch transistor is greater than the thickness of the gate insulating layer of the switching transistors.

Regarding claim 28, since the storage and the first power switching transistors have a higher threshold voltage, the channel width of the storage transistors and the first power switch transistor is less than the thickness of the gate insulating layer of the switching transistors.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 25, 26-28, 33-37, 45-46 and 49-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuzaki et al. (6,500,715). Figure 14 of Matsuzaki et al. shows a circuit arrangement comprising a flip flop (LH1 details shown in figure 8) having a plurality of storage transistors with a threshold voltage of a first value (high threshold), a first power switch transistor (MN1) having a second threshold voltage (high threshold), wherein an application of a predetermined electrical potential (CS) to the first power switch transistor gate terminal brings the circuit arrangement to an operating state (standby mode) in which if at least one supply voltage is switched off, electric charge carriers (leakage current) contained in the circuit arrangement are prevented from discharged from the circuit arrangement, and a plurality of switching transistors (TP1-TP3, TN1-TN3), having a threshold voltage of a third value, provided between the flip flop and the first power switch transistor, for coupling the flip flop input signal (IN) into the flip flop, wherein the magnitude of the first and/or second value is greater than the magnitude of the third value (high threshold voltage is larger than the low threshold voltage), wherein at least one of the terminals of the switching transistors has a defined electrical potential in the operating state (in the standby mode, the source terminals of the switching transistors have a defined electrical potential) as called for in claim 29.

Regarding claim 25, the flip flop (LH1) has two inverters.

Regarding claim 27, since the storage and the first power switching transistors have a higher threshold voltage, the thickness of the gate insulating layer of the storage transistors and the first power switch transistor is greater than the thickness of the gate insulating layer of the switching transistors.

Regarding claim 28, since the storage and the first power switching transistors have a higher threshold voltage, the channel width of the storage transistors and the first power switch transistor is less than the thickness of the gate insulating layer of the switching transistors.

Regarding claims 29 and 33, figure 45 of Masuzaki et al. shows a circuit arrangement comprising a flip flop (LH2 details shown in figure 8) having a plurality of storage transistors with a threshold voltage of a first value (high threshold), a first power switch transistor (MP1) having a second threshold voltage (high threshold), wherein an application of a predetermined electrical potential (CS) to the first power switch transistor gate terminal brings the circuit arrangement to an operating state (standby mode) in which if at least one supply voltage is switched off, electric charge carriers (leakage current) contained in the circuit arrangement are prevented from discharged from the circuit arrangement, and a plurality of switching transistors (IV1), having a threshold voltage of a third value, provided between the flip flop and the first power switch transistor, for coupling the flip flop input signal (IN) into the flip flop, wherein the magnitude of the first and/or second value is greater than the magnitude of the third value (high threshold voltage is larger than the low threshold voltage), wherein at least one of the terminals of the switching transistors has a defined electrical potential in the operating state (in the standby mode, the source terminals of the switching transistors have a defined electrical potential) as called for in claim 29.

Regarding claim 26, insofar as being understood, is common switch to flip flop (LH2) and additional flip flop (LH1).

Regarding claim 33, figure 45 shows a pulse generator (NA1) that generates a flip flop input signal from an input signal (Ai, Aj) and from a clock signal (ϕ) and is coupled to the first power switch transistor (MP1) and to the switching transistors (IV1).

Regarding claims 34 and 37, figure 45 of shows the pulse generator (NA1) having transistors with low threshold voltages.

Regarding claims 35-36, figure 45 shows the subcircuit NA1 generates at least one flip flop input signal from at least one input signal Ai with a predetermined logic operation (nand logic operation).

Regarding claims 47-48, figure 45 of Matsuzaki et al. shows the protection transistors MP5, MN5 having high threshold voltage.

Regarding claims 45 and 50, figure 14 of Matsuzaki et al. shows the protection transistors MP4, MN4 having high threshold voltage.

Regarding claim 46, since the protection transistors have a higher threshold voltage, the thickness of the gate insulating layer of the protection are greater than the thickness of the gate insulating layer of the switching transistors.

Regarding claim 49, in a first operating state, power switch MN1 switches off power supply to the switching transistors, the same control signal CS also electrically decouple the flip flop from the switching transistors, in a second operating state, the power switch MN1 connecting the power supply to the switching transistors, the protection circuit electrically couples the flip flop to the switching transistors.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiguchi et al. (USP 5,583,457) in view of Sani et al. (USP 6,794,914).

Figure 29 of Horiguchi et al. shows a circuit arrangement comprising a flip flop (LH) having a plurality of storage transistors with a threshold voltage of a first value (high threshold), a first power switch transistor (MP1, MN1) having a second threshold voltage (high threshold), wherein an application of a predetermined electrical potential (CK, CKB) to the first power switch transistor gate terminal brings the circuit arrangement to an operating state (standby mode) in which if at least one supply voltage is switched off, electric charge carriers (leakage current) contained in the circuit arrangement are prevented from discharged from the circuit arrangement, and a plurality of switching transistors (MP2, MN2), having a threshold voltage of a third value, provided between the flip flop and the first power switch transistor, for coupling the flip flop input signal (IN) into the flip flop, wherein the magnitude of the first and/or second value is greater than the magnitude of the third value (high threshold voltage is larger than the low threshold voltage), wherein at least one of the terminals of the switching transistors has a defined electrical potential in the operating state (in the standby mode, the gate terminals of the switching transistors have a defined electrical potential).

Horiguchi et al. does not disclose a test circuit coupled to the flip flop for testing the functionality of the flip flop as called for in claim 39. Sani et al. shows a flip flop having a test circuit (310 of figure 3) to test and to enhance the reliability of the flip flop. Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to include Sani et al.'s test circuit in the circuit arrangement of Horiguchi et al. for purpose of enhancing the reliability of the flip flop.

Regarding claim 40, the combination of Horiguchi et al. and Sani et al. show the test circuit comprising a test input signal (Sin), output components (output of the flip flop) that reads a test output signal of the flip flop.

Regarding claim 41, the combination of Horiguchi et al. and Sani et al. show the test circuit comprising a plurality of transistors (322, 324) having a high threshold voltage.

Regarding claim 42, since test transistors have a higher threshold voltage than the threshold voltage of the switching transistors, the thickness of the gate insulating layer of the test transistors are greater than the thickness of the gate insulating layer of the switching transistors.

8. Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuzaki et al. (USP 6,500,715) in view of Sani et al. (USP 6,794,914).

Figure 14 of Matsuzaki et al. shows a circuit arrangement comprising a flip flop (LH1 details shown in figure 8) having a plurality of storage transistors with a threshold voltage of a first value (high threshold), a first power switch transistor (MN1) having a second threshold voltage (high threshold), wherein an application of a predetermined electrical potential (CS) to the first power switch transistor gate terminal brings the circuit arrangement to an operating state

(standby mode) in which if at least one supply voltage is switched off, electric charge carriers (leakage current) contained in the circuit arrangement are prevented from discharged from the circuit arrangement, and a plurality of switching transistors (TP1-TP3, TN1-TN3), having a threshold voltage of a third value, provided between the flip flop and the first power switch transistor, for coupling the flip flop input signal (IN) into the flip flop, wherein the magnitude of the first and/or second value is greater than the magnitude of the third value (high threshold voltage is larger than the low threshold voltage), wherein at least one of the terminals of the switching transistors has a defined electrical potential in the operating state (in the standby mode, the source terminals of the switching transistors have a defined electrical potential).

Matsuzaki et al. does not disclose a test circuit coupled to the flip flop for testing the functionality of the flip flop as called for in claim 39. Sani et al. shows a flip flop having a test circuit (310 of figure 3) to test and to enhance the reliability of the flip flop. Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to include Sani et al.'s test circuit in the circuit arrangement of Matsuzaki et al. for purpose of enhancing the reliability of the flip flop.

Regarding claim 40, the combination of Matsuzaki et al. and Sani et al. show the test circuit comprising a test input signal (Sin), output components (output of the flip flop) that reads a test output signal of the flip flop.

Regarding claim 41, the combination of Matsuzaki et al. and Sani et al. show the test circuit comprising a plurality of transistors (322, 324) having a high threshold voltage.

Regarding claim 42, since test transistors have a higher threshold voltage than the threshold voltage of the switching transistors, the thickness of the gate insulating layer of the test transistors are greater than the thickness of the gate insulating layer of the switching transistors.

9. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuzaki et al. (USP 6,500,715) in view of Sani et al. (USP 6,794,914).

Figure 45 of Masuzaki et al. shows a circuit arrangement comprising a flip flop (LH1 details shown in figure 8) having a plurality of storage transistors with a threshold voltage of a first value (high threshold), a first power switch transistor (MP1) having a second threshold voltage (high threshold), wherein an application of a predetermined electrical potential (CS) to the first power switch transistor gate terminal brings the circuit arrangement to an operating state (standby mode) in which if at least one supply voltage is switched off, electric charge carriers (leakage current) contained in the circuit arrangement are prevented from discharged from the circuit arrangement, and a plurality of switching transistors (IV1), having a threshold voltage of a third value, provided between the flip flop and the first power switch transistor, for coupling the flip flop input signal (IN) into the flip flop, wherein the magnitude of the first and/or second value is greater than the magnitude of the third value (high threshold voltage is larger than the low threshold voltage) wherein at least one of the terminals of the switching transistors has a defined electrical potential in the operating state (in the standby mode, the source terminals of the switching transistors have a defined electrical potential).

Matsuzaki et al. does not disclose test transistors, coupled to the flip flop, having a gate thickness greater than the gate thickness of the transistors of the pulse generator as called for in claims 43 and 44. Sani et al. shows a flip flop having a test circuit (310 of figure 3) to test and

to enhance the reliability of the flip flop. Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to include Sani et al.'s test circuit in the circuit arrangement of Matsuzaki et al. for purpose of enhancing the reliability of the flip flop. Further, since test transistors have a higher threshold voltage than the threshold voltage of the pulse generator's transistors, the thickness of the gate insulating layer of the test transistors are greater than the thickness of the gate insulating layer of the pulse generator's transistors.

Response to Arguments

10. Applicant's arguments filed 5/12/2005 have been fully considered but they are not persuasive. Applicant has failed to satisfactorily explained as to how the power switch transistor (303 shown in figure 3) is a common switch to the flip flop (301). Therefore, the rejection of claim 26 under 35USC 112, second paragraph is maintained.

Allowable Subject Matter

11. Claims 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant's cited prior art has been carefully considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan T. Lam
Primary Examiner
Art Unit 2816

06/20/2005



FIG 6

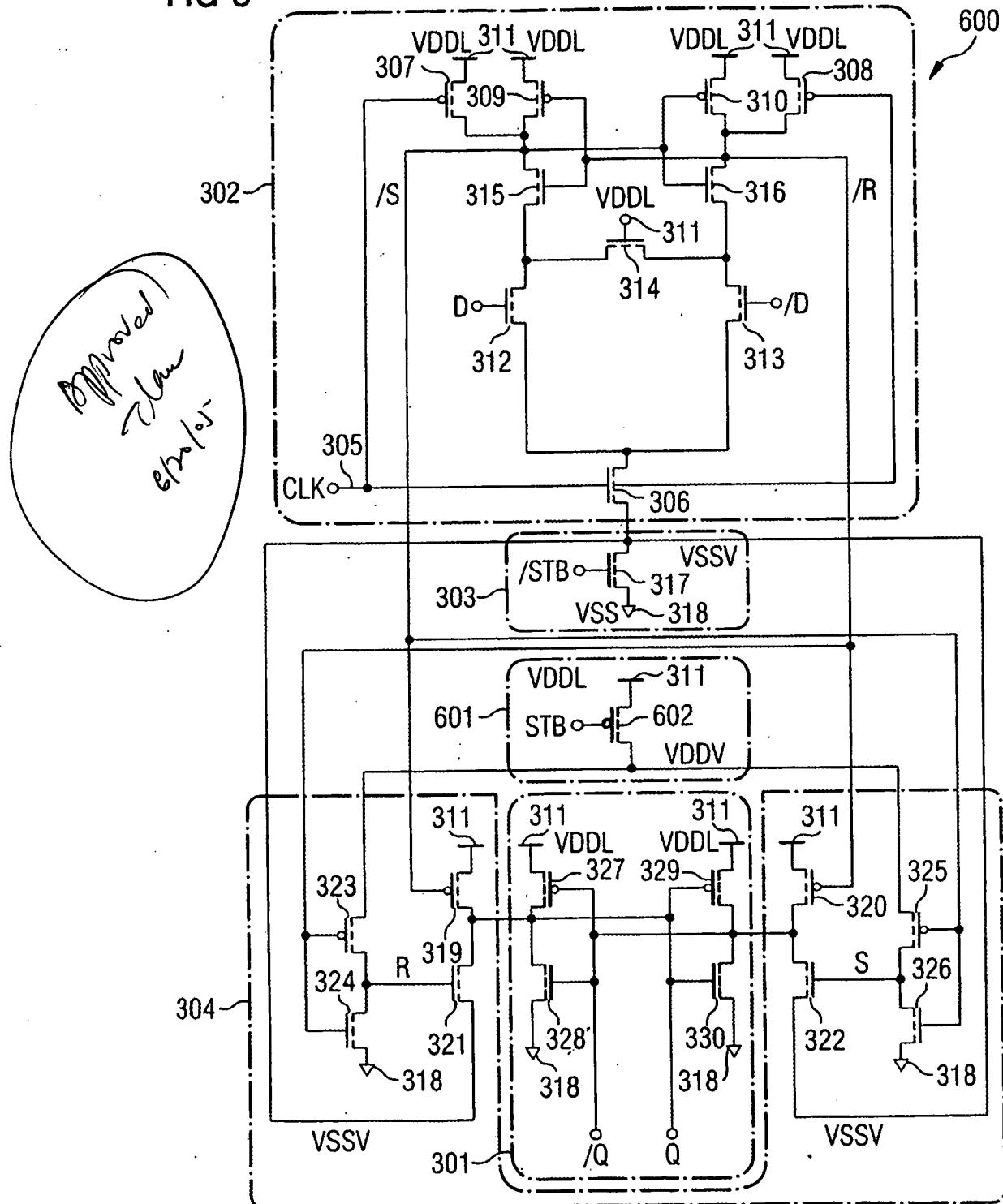
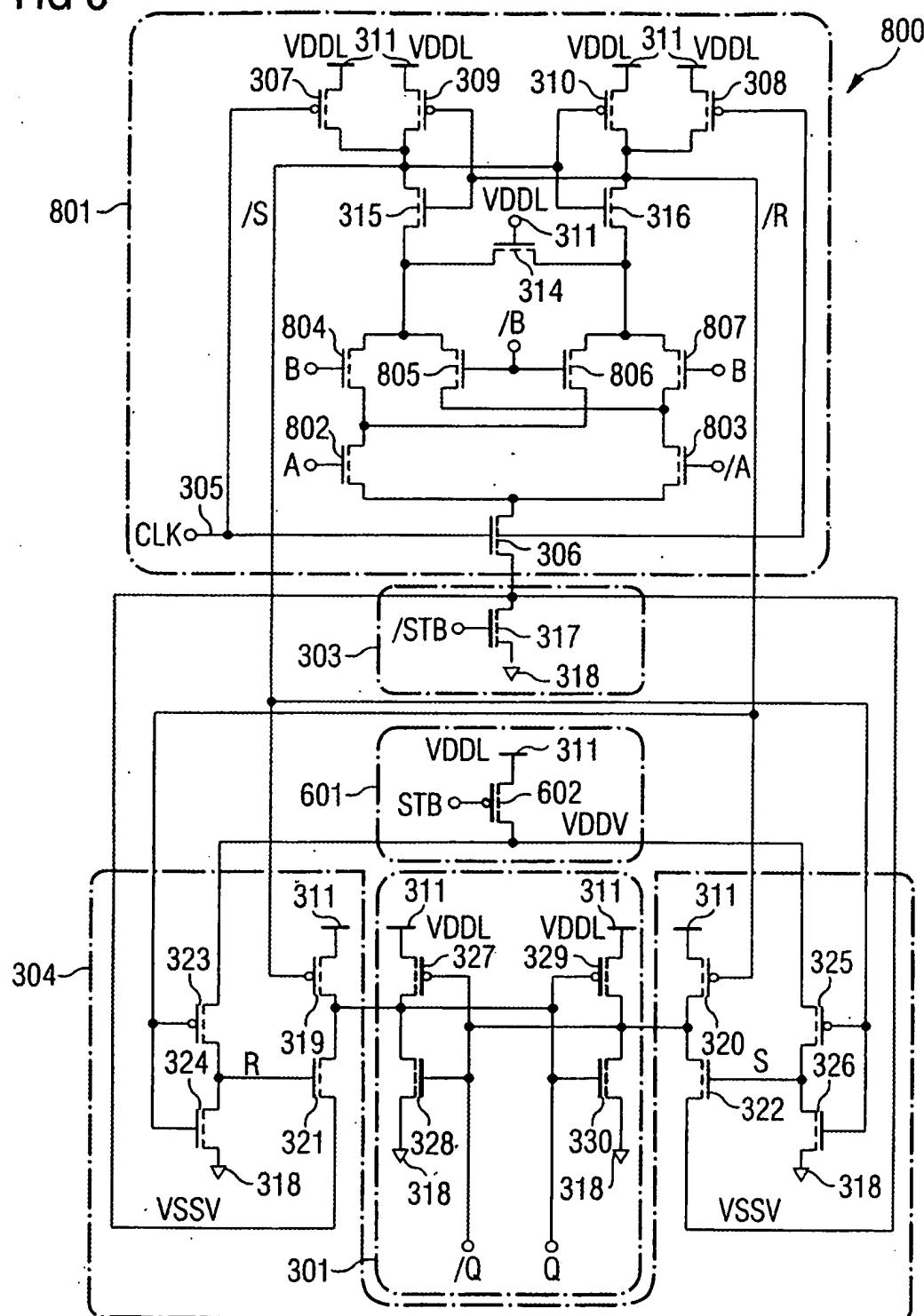


FIG 8



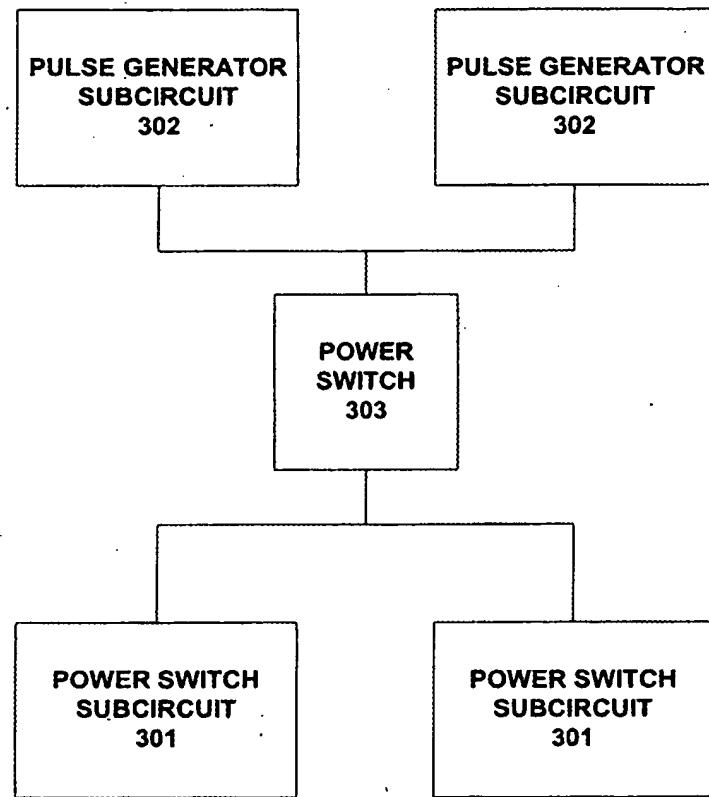


FIGURE 12